WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 32B075

STATION NAME: Touchet River at Cummins Road

WATER YEAR: WY 2010

AUTHOR: Mitch Wallace

Introduction

Watershed Description

The Touchet River is the largest tributary of the Walla Walla River in southeastern Washington. Its headwaters lie in the Blue Mountains above the town of Dayton in Columbia County. The main river is formed by the confluence of the North and South Forks.

Land use is primarily agricultural, consisting of dryland crops and irrigated farming in the lower portions.

Spring Chinook, steelhead, and bull trout are present within the watershed.

Gage Location

The gage is located on the left bank, directly upstream of the Cummins Road bridge crossing, one mile north of Touchet, Washington. It is located at river mile 3.0.

Table 1.

Drainage Area (square miles)	780 (USGS)
Latitude (degrees, minutes, seconds)	46° 03' 24" N
Longitude (degrees, minutes, seconds)	118° 40' 03" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	167
Median Annual Discharge (cfs)	139
Maximum Daily Mean Discharge (cfs)	887
Minimum Daily Mean Discharge (cfs)	6.4
Maximum Instantaneous Discharge (cfs)	991
Minimum Instantaneous Discharge (cfs)	3.2
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	334
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	20
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

The peak flow occurred on June 5, 2010. The lowest flows of the year occurred in the middle of August.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	7.4
Weighted Rating Error (% of discharge)	13.5
Total Potential Error (% of discharge)	20.9

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	#11	#12	#111
Period of Ratings	10/1/09 to 10/7/09	10/01/09 to 1/6/10	1/5/10 to 6/5/10
Range of Ratings (cfs)	7.6 to 4930	11.7 to 4930	7.6 to 4930
No. of Defining Measurements	17	16	17
Rating Error (%)	13.5	14.2	13.5

Rating Table No.	#901		
Period of Ratings	6/2/10 to 9/30/10		
Range of Ratings (cfs)	1.30 to 4930		
No. of Defining Measurements	22		
Rating Error (%)	12.7		

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

Nine discharge measurements were taken throughout the water year, ranging from 14.9 to 384 cfs.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	6.40
Maximum Recorded Stage (feet)	1.86
Range of Recorded Stage (feet)	4.54
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	36
Number of Days Qualified as Unreliable Estimates	16

Narrative

Data is qualified as an unreliable estimate when the mean daily flow difference between corrected and uncorrected data is greater than 50 percent, but less than 100 percent. Data is qualifed as an estimate when the mean daily flow difference between corrected and uncorrected data is greater than 20 percent, but less than 50 percent.

The staff gage was underwater or dewatered numerous times throughout the water year. The gage heights in these circumstances were calculated based on a staff gage/secondary gage regression. The secondary gages at this site are a tapedown from the bridge and a laser level reading of water elevation.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope Conveyance
Range of Modeled Stage (feet)	8.0 to 12.6
Range of Modeled Discharge (cfs)	1620 to 4930
Valid Period for Model	10/01/09 to 9/30/10
Model Confidence	3.4%

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
n/a	n/a

Activities Completed

Two reference marks associated with the laser level setup have shifted. New values for these reference marks were measured.